

REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Office Action dated 14 July 2006. Responsive to the Office Action, Claims 1 and 5 have been amended to more clearly define the inventive concept. Claims 1-13 are pending in the subject Patent Application.

In the Office Action, the Examiner rejected Claims 1, 4-5, 8-11 under 35 U.S.C. § 102(b) as being anticipated by Sandbach (U.S. #2003/0011576, hereinafter Sandbach). The Examiner also rejected Claims 12-13 under 35 U.S.C. § 103(a) as being unpatentable over Sandbach in view of Merz (U.S. Patent # 5,565,657, hereinafter Merz). Lastly, the Examiner rejected Claims 2-3 and 6-7 under 35 U.S.C. § 103(a) as being unpatentable over Sandbach in view of Stefik (U.S. Patent # 5,724,064, hereinafter Stefik).

Before discussing the references relied upon by the Examiner, it is believed beneficial to initially and briefly review the structure as more clearly defined by the newly amended claims. The claimed electronic input device includes among its combination of features: a film layer 10 made of a flexible material. A conducting layer 20, a covering layer 30, and a character display layer 40 are each respectively mounted on the film layer. A connecting unit 60 and an IC control unit 50 are each mounted on the conducting layer 20 and receive via the conducting layer, as input, a signal from a human's touch. As is well known in the art, the human body may act as an antenna for extremely low frequency (ELF) signals. In this invention, these ELF signals emanate

from any nearby power-grid and propagate through the user's finger into the keyboard on contact. On detection of an ELF signal in the range of fifty to sixty hertz, the keyboard will register a keystroke. It is noted that none of the references cited operate in accordance with this principle and necessarily do not include the combination of elements as recited in the amended Claims permitting this principle of operation to actuate a connected device.

In providing a thin electronic input device operating under this antenna principle, a thin, flexible keyboard with a single conducting layer, being free of moving parts is now possible. Among the benefits derived from the use of this principle are reductions across the board in: thickness, weight, fragility, manufacturing complexity, and cost. This reduction in complexity will further portability, operational life, and durability, while reducing manufacturing and user costs. Still further, the lack of moving parts allows for an almost perpetual operational life with improved reliability and accuracy.

The Examiner has rejected the originally filed Claims 1, 4-5, and 8-11 under 35 U.S.C. § 102(b) as being anticipated by Sandbach. The Sandbach reference is directed to a data processing apparatus with replacement keyboard. The Sandbach device is merely a conventional, mechanical keyboard albeit flexible. There are ten semi-flexible layers, three of which are planar conducting layers (301, 302, and 307) sandwiched among seven other layers of insulative material (303, 304, 305, 306, 308, 309, and 317). The device has six conductive elements (301, 307, 302, 311, 313, and 314) for transmitting the mechanical keypunches to an IC control unit. Mounted on the top layer are protruding

mechanical sensor buttons 106 for each control / alpha numeric character. This Sandbach device is operated through conventional mechanical closing of sensors 106 by mechanical force applied through the user's fingers to the sensors.

However, Sandbach does not disclose, allude or suggest this novel approach of using a human body as an antenna to propagate a signal which will trigger a keystroke. The subject Patent Application as defined herein takes as input a human electrical wave, as opposed to Sandbach which uses conventional mechanical force, to register keystrokes.

Thus, the Sandbach reference does not provide for: "... a single conducting layer for sensing a human electrical wave having a frequency between 50 and 60 hertz...." Sandbach also lacks "...said human electrical wave provides electrical input to said electronic input device when contacted by a carrier of said human electrical wave..." as defined by newly amended independent Claims 1 and 5.

In opposition, the Sandbach reference discloses a device which requires closing of individual circuits through mechanical force to input keystrokes. The Sandbach device is not configured, intended, or modifiable to accept input by a human electrical wave, as is necessary for newly amended independent Claims 1 and 5.

Further, Sandbach does not disclose, allude or suggest the reduction in conductive layers, let alone, the use of a singular conductive layer. The Sandbach device could not possibly operate with a single conductive layer, as it inherently operates by contact of at least two conductive layers to close a circuit.

Thus, the Sandbach reference does not provide for: “... a single conducting layer for sensing a human electrical wave having a frequency between 50 and 60 hertz...” as defined by newly amended independent Claims 1 and 5.

In opposition, the Sandbach reference discloses a device which does not provide increased portability, operating life, or reduced cost through reduction in conducting layers. Sandbach teaches a device using three conductive layers (301, 307, and 302). As these are all mounted together, they require at least two insulative layers between them to prevent short circuit, and two more layers on the top and bottom faces. In fact, Sandbach is composed of ten (10) layers as seen in Figure 3. ([0035] line 3). The Sandbach device is not configured for, nor intended for use with a singular conductive layer, as is necessary for newly amended independent Claims 1 and 5.

Further still, Sandbach does not disclose, allude or suggest the lack of moving parts. The Sandbach device, as it operates in a conventional fashion by contact of at least two biased-apart conductive layers to close a circuit, requires a displacement of at least one conductive element into contact with the other.

Thus, the Sandbach reference does not provide for: “... said conducting, covering, and character layers being non-displaceably mounted...” as defined by newly amended independent Claims 1 and 5.

In opposition, the Sandbach reference discloses a device which does not provide increased portability, operating life, or reduced cost through elimination of moving parts. Sandbach teaches a device using three conductive layers (301, 307, and 302) which must

be physically displaced into one another with every keystroke. The Sandbach device is not configured for, nor intended for use without moving parts, as is necessary for newly amended independent Claims 1 and 5.

The Examiner has rejected Claims 12-13 under 35 U.S.C. § 103(a) as being unpatentable over Sandbach in view of Merz. Merz is directed to a multidimensional user interface input device. Merz does not suggest, allude, or provide for receiving as input a human electric wave, a singular conducting layer, nor non-displaceable layers as is necessary to newly amended independent Claims 1 and 5.

The Examiner has rejected Claims 2-3 and 6-7 under 35 U.S.C. § 103(a) as being unpatentable over Sandbach in view of Stefik. Stefik is directed to a computer system with an interactive display. Stefik does not suggest, allude, or provide for receiving as input a human electric wave, a singular conducting layer, nor non-displaceable layers as is necessary to newly amended independent Claims 1 and 5.

As Claims 2-3, and 6-13 all are ultimately dependent upon newly amended independent Claims 1 and 5, the Claims are now believed to show patentability for at least the same reasons as presented above.

As none of the cited references taken alone, or in combination disclose, allude, or suggest the unique combination of features recited by the pending Claims, it is not believed that they can make obvious the subject Patent Application whether taken alone or in combination. It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

If there are any fees necessary in this filing, the Director of Patents and Trademarks is hereby authorized to charge deposit account # 18-2011 for such additional charges.

Respectfully submitted,
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